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PENSOFT

First records of Gray-hooded Gull, *Chroicocephalus cirrocephalus* (Vieillot, 1818) (Charadriiformes, Laridae), in the state of Espírito Santo, Brazil

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Abstract

Gray-hooded Gull, *Chroicocephalus cirrocephalus* (Vieillot, 1818), is distributed across South America and considered a resident, with individuals in their non-breeding period able to disperse over long distances. We report the first records of this species from the state of Espírito Santo, the only state on the Brazilian coast without previous records. We suggest that the geographical distribution of this species is expanding along the Brazilian coast, in accordance with what has been previously suggested for Gray-hooded Gull.

Keywords

Aves, birds, distribution, geographical expansion, Gray-headed Gull

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Introduction

Gray-hooded Gull, *Chroicocephalus cirrocephalus* (Vieillot, 1818), formerly placed in the genus *Larus*, has two recognized subspecies: *C. cirrocephalus poiocephalus* on the African mainland and the island of Madagascar and *C. cirrocephalus cirrocephalus* in South America (Brooke et al. 1999; Burger et al. 2020a). It occurs mainly along the shores of tropical and subtropical coasts, estuaries, harbors, offshore islands, inland lakes, rivers, and marshes (Burger and Gochfeld 1996; Olsen and Larsson 2004; Tavares and Siciliano 2013; Burger et al. 2020a). The South American subspecies gregariously breeds mainly inland in four known regions: eastern South America (Argentina, Uruguay, and Rio Grande do Sul, southern Brazil); southeastern Brazil (Rio de Janeiro); northeastern Brazil (Maranhão, Piauí, Ceará, and Rio Grande do Norte); and Peru (Tovar

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and Ashmole 1970; Olsen and Larsson 2004; Tavares et al. 2013; Burger et al. 2020a). Individuals that breed inland move to the coast in the non-breeding period and can disperse long distances, but this species is not considered migratory (Olsen and Larsson 2004; Burger et al. 2020a). In Brazil, Gray-hooded Gull has been recorded from Rio Grande do Sul to Rio de Janeiro and from Bahia to Amapá (Scherer-Neto and Straube 1995; Sick 1997; Azevedo-Junior et al. 2004; Rodrigues 2006; Albano et al. 2007; Souza and Borges 2008; Barbieri et al. 2010; Leal et al. 2013; Lees et al. 2013; Sonntag 2013; Almeida 2015), but the Espírito Santo represents a gap in the species' geographic distribution. Here, we report the first confirmed records of Gray-hooded Gull for Espírito Santo, the only state on the Brazilian coast this species was unrecorded.

Methods

On 7 July 2019, an individual of Gray-hooded Gull was observed and photographed at Itaparica beach, Vila Velha, Espírito Santo, Brazil. On 17 July 2019, another individual was incidentally observed and photographed at Vitória bay, in the state of Espírito Santo, Brazil. Using these photographs, we identified the species from details in the plumage of the two individuals.

To find previous records of the species, we searched for references concerning the distribution of Gray-hooded Gull in Brazil. The search was done on the online platforms Google Scholar and Searchable Ornithological Research Archive (SORA 2020), using the species' scientific and common names as keywords. We complemented our search with records available in online databases: eBird (2020), Global Biodiversity Information Facility (GBIF.org 2020), iNaturalist (2020), speciesLink (2020) and WikiAves (2020). From these databases, we only considered records with photographs to confirm the occurrence of the species in each municipality of the country (Appendix, Table A1).

We used QGIS v. 3.6.6 (QGIS.org 2020) and distribution data from the scientific literature, online databases, and our new records, were used to map the occurrence of Gray-hooded Gull in Brazil.

Results

***Chroicocephalus cirrocephalus* (Vieillot, 1818)**
Figures 1–3

New records. BRAZIL • 1 individual, undetermined sex; Espírito Santo, Vila Velha, Itaparica beach; 20°22.03′S, 040°17.94′W; 7 Jul. 2019; AVS, CAA, CB, LESS, TLSW, VHLS. • 1 individual, undetermined sex; Espírito Santo, Vitória, Vitória bay; 20°19.13′S, 040°17.79′W; 17 Jul. 2019; EFSJ.

Additional photographs were uploaded to WikiAves

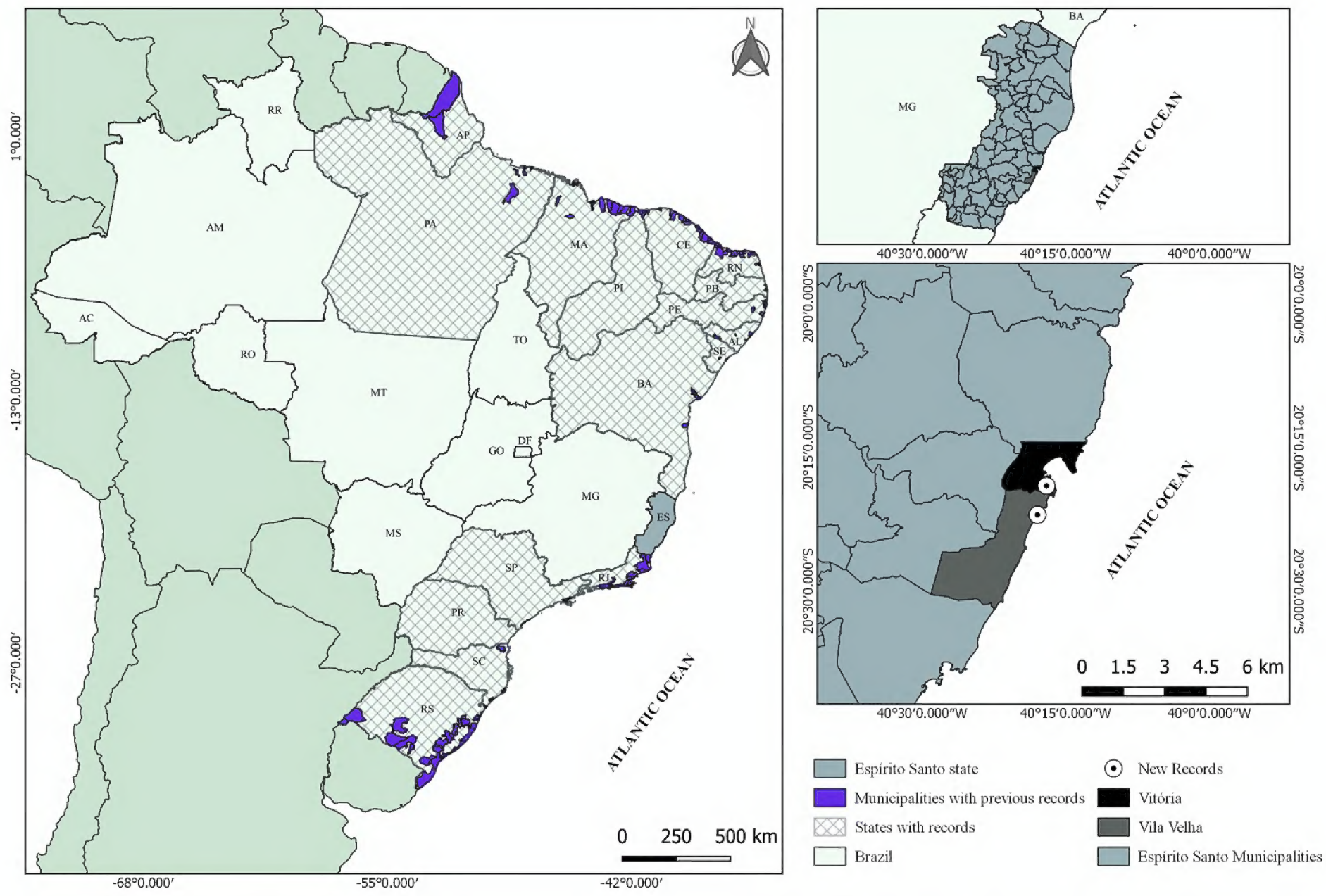

Figure 1. Distribution map of the Gray-hooded Gull, *Chroicocephalus cirrocephalus* (Vieillot, 1818), in Brazil. Left: municipalities with previous records cited in the scientific literature and online databases: eBird, GBIF, iNaturalist, speciesLink and WikiAves. Right: municipalities and specific sites where the two new records were registered in the state of Espírito Santo.

Figures 2, 3. Gray-hooded Gull, *Chroicocephalus cirrocephalus*, in Espírito Santo, Brazil. **2.** In non-breeding plumage, municipality of Vila Velha, 7 July 2019. **3.** In breeding plumage (red arrow) recorded in the municipality of Vitória, 17 July 2019. Photographed by Arthur V. de Santana (Fig. 2), Edvaldo F. Silva-Jr (Fig. 3).

(https://www.wikiaves.com.br/3419028 and https://www.wikiaves.com.br/3422163) and eBird (https://ebird.org/checklist/S58251849).

Identification. The first observed individual was an adult of undetermined sex in non-breeding plumage. We identified Gray-hooded Gull by the white bases of the primary feathers on the upperwings, which create a half-moon shape contrasting with the black wingtip, and the white mirror on P9 and P10 which was also observed on the underwing (Olsen and Larsson 2004; Burger et al. 2020a). Brown-hooded Gull, *Chroicocephalus maculipennis* (Lichtenstein, 1823), when in non-breeding plumage, is very similar to Gray-hooded Gull, but Brown-hooded Gull has a broad white triangle at the wingtip, contrasting with the black underside of primaries, and it does not have a black wingtip (Belton 1994; Sick 1997; Burger et al. 2020b). The second Gray-hooded Gull was identified by the breeding plumage, showing the unique grey hood, which gives the name to the species (Olsen and Larsson 2004; Burger et al. 2020a).

Discussion

We counted 133 municipalities in Brazil with previous records of Gray-hooded Gull; these widely cover the length of the Brazilian coast, except for Espírito Santo. Previously, Ruschi (1953) had reported Gray-hooded Gull in his list of birds of Espírito Santo based on museum specimens. However, Pacheco and Bauer (2001) regarded the occurrence in the state as doubtful after a detailed study of Augusto Ruschi's records, and Simon (2009) also considered Ruschi's records as not valid. Therefore, our study contains the first confirmed records of Gray-hooded Gull from Espirito Santo.

Gray-hooded Gull can disperse long distances from its inland breeding grounds to the coast (Burger et al. 2020a; Johnstone 1982). Therefore, its occurrence was expected in Espírito Santo, considering the proximity to areas with previous records, such as the northern portion of Rio de Janeiro (São Francisco de Itabapoana, ca 150 km from the site of our records) (Tavares et al. 2013) and the central coast of Bahia (Itacaré, ca 680 km) (WikiAves: WA3438016). The breeding dispersal movements of this species may be associated with search for food. During the dry season (winter), shallow, coastal waters can provide great foraging conditions (Ntiamoa-Baidu et al. 1998; Macedo-Soares et al. 2010). Our records were both made during the winter and would be in agreement with what is known about this species. Conversely, on the coast during the rainy season (summer), higher water levels are unsuitable for foraging (Ntiamoa-Baidu et al. 1998; Tavares et al. 2013), which may influence the seasonal occurrence of this species along the coast.

Based on an increasing number of records for Gray-hooded Gull in the last decades, including breeding evidence in northern Rio de Janeiro, Tavares et al. (2013) noted that this species has expanded its range along the Brazilian coast. This range expansion could be associated with ongoing habitat degradation (Tavares et al. 2013) and availability of anthropogenic food resources (Camphuysen and Garthe 2000; Sherley et al. 2019). In Argentina, population growth and range expansion of Kelp Gull, *Larus dominicanus* Lichtenstein, 1823, was observed on the coast of northern Patagonia and was possibly linked to anthropogenic food resources (Lisnizer et al. 2011). However, there is no confirmation that Kelp Gulls have expanded their breeding range in South America as a whole (Yorio et al. 2016). Additional studies are necessary to comprehend whether Gray-hooded Gull and other gull species in South America are expanding their ranges and to investigate the possible causes.

To conclude, because there is no previous record of Gray-hooded Gull from Espírito Santo (Simon 2009), our records support the possibility that this species keeps expanding its geographical distribution in Brazil. We emphasize that more studies are necessary to better understand the geographical distribution, movements, and seasonal occurrence of Gray-hooded Gull in the country and the rest of South America.

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Authors' Contributions

All the authors participated in the data collection and in writing the manuscript.

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Appendix

Table A1. Dataset from the scientific literature and online databases (eBird, GBIF, iNaturalist, speciesLink and WikiAves) used to create Figure 1. Only the oldest record for each municipality of Brazil is included, and we only considered citizen-science records with photographs.

Source	Reference	Registration code	State	Municipality
Article	Albano et al. 2007	NA	CE	Icapuí
Article	Azevedo-Junior et al. 2004	NA	RN	Galinhos
Article	Barbieri et al. 2010	NA	SP	Ilha Cumprida
Article	Carvalho 2008	NA	MA	Ilha dos Caranguejos
Article	Lees et al. 2013	NA	PA	Belém
Article	Paetzold and Querol 2008	NA	RS	Uruguaiana
Article	Perello 2006	NA	RS	Tavares
Article	Rodrigues 2006	NA	AM	Serra do Navio
Article	Scherer-Neto and Straube 1995	NA	PR	Data missing
Article	Silva 2007	NA	MA	Raposa
Article	Souza et al. 2008	NA	AP	Oiapoque
Article	Souza and Borges 2008	NA	BA	Litoral do Recôncavo
Article	Tavares et al. 2013	NA	RJ	Armação dos Búzios
Article	Tavares et al. 2013	NA	RJ	São Francisco de Itabapoana
Article	Votto 2006	NA	RS	Rio Grande
eBird	Charles Avenengo 2020	ML210126121	PE	Porto Galinhas
eBird	Christophe Buidin 2017	ML49297751	MA	Paço do Lumiar
eBird	Ricardo Mitidieri 2019	ML182428831	RJ	Piratininga
eBird	Ricardo Mitidieri 2019	ML192072441	RJ	Ilha do Pontal
iNaturalist	Christian Artuso 2013	60244581	RJ	Arraial do Cabo
iNaturalist	Geison Mesquita 2010	83644076	MA	Vinhais
WikiAves	Bruno Jackson Almeida 2012	WA565058	MA	Apicum-Açu
WikiAves	Ciro Albano 2006	WA322479	RN	Grossos
WikiAves	Fabricio Gonsioroski 2010	WA217343	MA	São Luís
WikiAves	Luís Roberto Silva 2013	WA924001	MA	Araioses
WikiAves	Zenaro 2015	WA1937416	MA	Humberto Campos
WikiAves	Alexander Lees 2013	WA879469	PA	Vigia
WikiAves	Alexander Lees 2013	WA879620	PA	Marapanim
WikiAves	Alfredo Rocchi 2008	WA534168	RS	Mostardas
WikiAves	Ana Clara Guerra 2014	WA1403993	CE	Paracuru
WikiAves	André Wittmann 2012	WA623936	RS	Arroio Grande
WikiAves	Andreth Oliveira 2010	WA175605	MA	Tutóia
WikiAves	Arnaldo Vieira-Filho 2013	WA1497577	RN	São Bento do Norte
WikiAves	Benedito Melo 2015	WA1884750	RN	Alto do Rodrigues
WikiAves	Bruno Barboza 2014	WA1625311	CE	Fortaleza
WikiAves	Bruno França 2010	WA253370	RN	Guamaré
WikiAves	Bruno França 2009	WA357918	RN	Macau
WikiAves	Bruno Jackson Almeida 2013	WA1426735	SE	Barra dos Coqueiros
WikiAves	Caco Schwertner 2010	WA105479	RS	Tramandaí
WikiAves	Cadu Amorim 2004	WA198842	RJ	Campos dos Goytacazes
WikiAves	Caio Belleza 2018	WA3128225	RS	Bagé
WikiAves	Carlos Eduardo Agne 2012	WA956590	RS	Barra do Ribeiro
WikiAves	Carlos Eduardo Moura 2015	WA1654745	CE	Aquiraz
WikiAves	Carlos Eduardo Simões da Silva 2018	WA3151964	RS	Camaquã
WikiAves	Cesar Santos 2008	WA199494	RS	Santa Vitória do Palmar
WikiAves	Chico Rasta 2014	WA1551944	PI	Cajueiro da Praia
WikiAves	Chico Rasta 2015	WA1582872	PI	Ilha Grande
WikiAves	Davi Abreu 2012	WA748405	CE	Acaraú
WikiAves	David Muniz 2008	WA46892	MA	São José de Ribamar
WikiAves	Edilson Pichiliani 2011	WA1763858	RS	Porto Alegre
WikiAves	Edson Soriedem Pinto 2019	WA3442119	RN	Touros
WikiAves	Eduardo Carrion 2012	WA619378	RS	Osório
WikiAves	Eduardo Fernandes 2 2015	WA1641413	PB	Lucena
WikiAves	Eduardo Maciel 2012	WA1634366	RJ	São João da Barra
WikiAves	Eduardo Teixeira Filho 2015	WA1864209	BA	Santo Amaro
WikiAves	Emerson Kaseker 2011	WA330074	BA	São Francisco do Conde
WikiAves	Fábio Vasconcelos 2013	WA1174658	PI	Luís Corrêa

Source	Reference	Registration code	State	Municipality
WikiAves	Fabricio Basilio 2008	WA167541	RS	Pelotas
WikiAves	Felipe Almansa 2017	WA2824847	RS	Dom Pedrito
WikiAves	Fernanda Araujo 2007	WA101050	RJ	Cabo Frio
WikiAves	Flávio Mota 2010	WA257657	RN	Mossoró
WikiAves	Frederico Acaz Sonntag 2013	WA1026175	PB	João Pessoa
WikiAves	Gilberto Müller 2012	WA713795	RS	Palmares do Sul
WikiAves	Gina Bellagamba 2011	WA421838	RS	Barra do Quaraí
WikiAves	Giovane Alves Lima 2012	WA1689317	RS	Jaguarão
WikiAves	Guilherme Serpa 2008	WA24186	RJ	Niterói
WikiAves	Guilherme Serpa 2011	WA281758	RJ	Araruama
WikiAves	Gustavo Henrique Silveira 2010	WA138377	RJ	Quissamã
WikiAves	Gustavo Malacco 2010	WA178694	MA	Barreirinhas
WikiAves	Heberty Adorno 2016	WA2373235	BA	Salvador
WikiAves	Hugo Willlian Cacho 2015	WA1695294	RN	Caiçara do Norte
WikiAves	Igor Camacho 2010	WA133430	RJ	Rio de Janeiro
WikiAves	Igor Camacho 2011	WA520875	RJ	Maricá
WikiAves	Ivo Ghizoni-Jr. 2009	WA599792	SC	Araranguá
WikiAves	Jan Van den Bosch 2012	WA1362589	RN	Pendências
WikiAves	João Abreu 2017	WA2447812	BA	Jandaíra
WikiAves	Joao B. Quental 2013	WA1049974	RJ	Guapimirim
WikiAves	José Agustoni 2014	WA3798901	RS	Xangri-lá
WikiAves	Joserley Souza 2015	WA1665683	RN	Tibau
WikiAves	Kalyl Silvino 2016	WA2110321	RN	Serra do Mel
WikiAves	Laerte Cardim 2019	WA3308831	SC	Laguna
WikiAves	Lena Zingano 2012	WA613592	RS	São Lourenço do Sul
WikiAves	Lucas Dib 2016	WA2286338	CE	Cascavel
WikiAves	Luciano L. Marques 2013	WA1419282	RS	São Gabriel
WikiAves	Luciano S. Costa 2008	WA1131708	SC	Joinville
WikiAves	Lúcio Serapião 2011	WA457413	PE	Itapissuma
WikiAves	Luis Esmerino 2016	WA2063999	MA	Paulino Neves
WikiAves	Luis Gonzaga Sales Jr 2011	WA546844	CE	Aracati
WikiAves	Luiz Freire 2007	WA28463	RJ	Iguaba Grande
WikiAves	Luiz Gonzaga 2018	WA3171646	RN	São Miguel do Gostoso
WikiAves	Marcel Aiub 2012	WA720184	RS	Gravataí
WikiAves	Marcello Casoni 2010	WA238583	MA	Santo Amaro do Maranhão
WikiAves	Marcelo Holderbaum 2012	WA829196	CE	Trairi
WikiAves	Marcelo S. Teixeira 2010	WA140053	CE	Camocim
WikiAves	Marcia Tavares 2016	WA2315444	CE	Paraipaba
WikiAves	Margi Moss 2010	WA113919	RN	Areia Branca
WikiAves	Maria Albers 2011	WA337303	RS	São José do Norte
WikiAves	Mats Hildeman 2020	WA3695848	PE	Ipojuca
WikiAves	Maurício Fujiyama 2010	WA178320	CE	Jijoca de Jericoacoara
WikiAves	Miguel Nema 2013	WA1004427	SP	Caraguatatuba
WikiAves	Mikhail T. Nogueira 2014	WA2457179	MA	Penalva
WikiAves	Natanael Matos 2014	WA1639712	CE	Eusébio
WikiAves	Nido Cafezeiro (Macaco) 2019	WA3438016	BA	Itacaré
WikiAves	Pablo Cerqueira 2010	WA258533	PI	Parnaíba
WikiAves	Paulo Miranda 2014	WA2636284	CE	Amontoada
WikiAves	Paulo Tinoco 2011	WA455547	RJ	Macaé
WikiAves	Pedro Têia 2016	WA2143208	AL	Pão de Açúcar
WikiAves	Rafael Bessa 2012	WA1145766	RJ	Rio das Ostras
WikiAves	Rafael Bessa 2011	WA272258	RJ	São Pedro da Aldeia
WikiAves	Rafael Fernandes 2011	WA2023598	RJ	Saquarema
WikiAves	Rafael Kobayashi 2009	WA724985	RN	Porto do Mangue
WikiAves	Régis Teixeira 2015	WA1878680	CE	Fortim
WikiAves	Renato Rosa 2014	WA1265004	CE	Itarema
WikiAves	Ricardo D. Colvero 2015	WA1837786	RS	Torres
WikiAves	Ricardo Leite 2015	WA1724727	CE	Beberibe
WikiAves	Ricardo Roth 2009	WA61353	RS	Aranbaré
WikiAves	Roberto Braga 2013	WA882020	CE	São Gonçalo do Amarante
WikiAves	Roberto Dall Agnol 2016	WA2242089	RS	Capão da Canoa
WikiAves	Roberto Oliveira 2013	WA1151661	RN	Natal
WikiAves	Rodrigo Azambuja 2012	WA578565	RS	Tapes
WikiAves	Rodrigo Gonçalves Santos 2014	WA1236303	RS	Viamão
WikiAves	Romilson Junior 2012	WA564188	CE	Barroquinha
WikiAves	Rudimar De Matos 2017	WA2678798	RS	Candiota
WikiAves	Sandro Paixão 2019	WA3593765	RJ	Casimiro de Abreu
WikiAves	Saulo Gomes 2013	WA1182011	PA	Salinópolis
WikiAves	Sérgio Leal 2017	WA2466643	AL	Maceió
WikiAves	Sérgio Leal 2010	WA331038	AL	Barra de São Miguel
WikiAves	Sidnei Dantas 2016	WA2409437	PE	Recife
WikiAves	Sidnei Sampaio 2010	WA1540941	BA	Madre de Deus
WikiAves	Sylvia Junghähnel 2013	WA1288157	RJ	Paraty
WikiAves	Wallace T. Júnior 2013	WA2405220	PE	Igarassu
WikiAves	Wellington J. Pereira 2019	WA3440855	MA	Maranhãozinho
WikiAves	Zenaro 2015	WA1937596	MA	Axixá